Amendments to the Claims:

Claim 1 (currently amended): A method for determining gas exchange efficiencies of volumetric portions of and the volume of the lungs of a subject to express ventilation homogeneity characteristics of volumetric portions of the lungs, said method comprising the steps of:

5   (a)   allowing the patient to breathe ~~breath~~ with breathing gases having given properties regarding the amount of an inert gas contained therein;

(b)   ascertaining the concentration F_O of the inert gas in the lungs of the subject;

(c)   altering the amount of the inert gas in the breathing gases provided to

10   the subject;

(d)   causing the subject to breathe ~~breath~~ breathing gases having the altered amount of the inert gas;

(e)   thereafter measuring the change in volume ΔV_{ig} of the inert gas in the lungs of the subject and the concentration F of inert gas in the lungs of the subject for

15   each breath;

(f)   making a determination of the lung volume V of the subject using a summation of the volume change ΔV_{ig} of the inert gas in the lungs of the subject, the concentration F of the inert gas in the lungs of the subject, and the amount F_O of the inert gas in the breathing gases ascertained in step (b);

20   (g)   obtaining a measure of the gas exchange efficiency of the subject's lungs using the breathing gas volume V_A of the subject and the lung volume V determined in step (f);

(h)   repeating step (e) and, respectively, steps (f) and (g) for a subsequent breath of the subject to make at least one further determination of the lung volume V of

25   the subject and obtain at least one further gas exchange efficiency measure;

(i)   forming a lung volume V data series comprising the volumes V

determined for each breath and, respectively, a gas exchange efficiency data series comprising gas exchange efficiencies obtained for each breath; and

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(j)   expressing the ventilation homogeneity of volumetric portions of the lungs of the subject by relating the series of gas exchange efficiencies to the lung volume series.

Claim 2 (currently amended): The method according to claim 1 wherein ~~1 wherein~~ step (e) is further defined as measuring the concentration F of the inert gas in the lungs of the subject using end tidal inert gas concentrations of the subject.

Claim 3 (original): The method according to claim 1 wherein step (g) is further defined as obtaining a gas exchange efficiency measure comprising a dilution ratio for the amount of inert gas F_O in the breathing gases.

Claim 4 (original): The method according to claim 1 wherein step (j) is further defined as carrying out the expression graphically by plotting one data series on an abscissa of a graph and the other data series on an ordinate of a graph.

Claim 5 (original): The method according to claim 1 wherein step (h) is further defined as making a plurality of further determinations of lung volume V and as obtaining a plurality of further gas exchange efficiency measures.

Claim 6 (currently amended): The method according to claim 1 further including the step (k) ~~(j)~~ of normalizing the further gas exchange efficiency measure obtained in step (h) using the ~~measured~~ gas exchange efficiency measure obtained in step (g) for a first breath of the subject after altering the amount of inert gas in the breathing gases provided to the
5   subject.

Claim 7 (currently amended): The method according to claim 5 further including the step
(k) ~~(j)~~ of normalizing the further gas exchange efficiency measure obtained in step (h)
using the ~~measured~~ gas exchange efficiency measure obtained in step (g) for a first breath
of the subject after altering the amount of inert gas in the breathing gases provided to the
5   subject.